

EXHIBIT A

Slava Zavadsky, Ph.D.

Innovator, Expert and Investigator Patent assessments and assertions

- ◆ **Ph.D.** with specialization in image/video processing and compression; M.Sc. in computer science.
- ◆ **20 years of professional experience**, 9 years of intellectual property rights experience; over 2000 patents reviewed, (> 300 successfully asserted), detailed claim chart delivery, high level portfolio mining, patent buy-side “fishing expeditions” and anything in between.
- ◆ **IP experience** in various software areas (image/video processing, Linux and Android, enterprise IT, gaming and graphics), developed functional tests setups for HW related functionality (performance and power management functionality, wireless algorithms, image processing; desktop and embedded, medical, graphics, gaming consoles and mobile phones.)
- ◆ **12** issued US patents, 10 more pending. 1 allowed with *pro se* prosecution. Over 20 peer-reviewed articles. Image processing, algorithms for circuit reverse engineering, assertion related functional testing, applied statistics, combinatorial optimization, algorithms and data structures. Taught web applications programming, computational geometry, image processing, and database management.
- ◆ **Developed:** algorithms and engines for image/video processing and compression, graph algorithms and data structures, artificial intelligence and data mining, games, rendering engines, Linux drivers and patches, network protocols, Apache modules, mobile applications, web applications, content management systems, web server-side engines, embedded software, search applications and engines, multi-threaded and multicore stuff.
- ◆ **Network** of subject matter experts (mobile, graphics, gaming, GPS, enterprise, cloud) and software reverse engineering specialists whom I have positive experience to engage on IP projects.

IP EXPERIENCE

<i>Problem solving – how to cost effectively support patent by black box testing in many areas.</i>	<i>Patent mining and mapping of old patents to newer domains</i>	<i>Software reverse engineering</i>
<i>Detection of performance (cache, pipeline, multicore) and power (voltage and frequency scaling, cache data retention, clock gating) features</i>	<i>Image and video compression and processing. Both standards and detection of non-essential functionality by functional testing.</i>	<i>Linux, Android and other open source analysis and modifications.</i>
<i>Substantial customer facing experience</i>	<i>Enterprise software: J2EE, .NET, cloud, databases.</i>	<i>API hijacking</i>
	<i>Finding of good patents belonging to small entities</i>	<i>Gaming and graphics, GPU</i>
		<i>Claim construction and file wrappers</i>
		<i>Smart grid and smart home</i>
		<i>Smartphones and GPS</i>

BACKGROUND

ZAVADSKY TECHNOLOGIES

Patent assessments and investigations, software project management, development and consulting

Principal, 2011 to Present

“ELECTRONIC WORKOUTS” AND “SMARTHOME INNOVATIONS”

Stealth mode startups aiming at developing and protecting technology in gaming based fitness and smarthome friendly appliances

Co-founder, 2009 to Present.

Build prototypes using embedded development tools, gaming engines, and hardware. *Pro Se* filed several patent applications, including 12/618680 that has been allowed with broad claims covering strength training with computer games.

UBM TECHINSIGHTS (PREVIOUSLY SEMICODUCTOR INSIGHTS)

Largest firm specializing in technical investigations for intellectual property rights in the electronics segment.

Program manager, software, 2008 to 2011; **Principal software architect**, 2006 to 2008;
Senior R&D Software developer, 2003 to 2006.

Circuit reverse engineering software suite, software analysis, custom software for functional testing: day to day technical oversight, program planning, and hands on contribution.

Developed techniques and trained team of analysts to use special low level software to expose performance and power management functionality of desktop, application, graphics, and embedded processors. Developed over 30 different test approaches, one illustrative approach can be found in my U.S. patent 7899640. Supported over 40 patents for several customers. Gained substantial expertise in subject matter and low level programming using Linux, Windows, Windows Phone, Apple iOS and ARM based application processors.

Developed techniques and trained team to use open source software to assert patents against it, gain insights on HW functionality and assert patents against system, and gain insights and enable Reverse Engineering (RE) of closed source software. Gained expert level understanding of Android and substantial expertise in open source enterprise software.

Built and technically supervised the team for software reverse engineering. Managed and hands-on executed projects on embedded platforms (appliances, devices, printers), GPS, smartphones and desktop platforms. Created core engine and managed development of a proprietary decompiler, switched the team to off-the-shelf solution once it became available.

Personally reviewed over 2000 patents. Prepared preliminary claim charts based on publicly available information and worked with the customer on cost effective follow up analysis.

Founding member of systems analysis group, helped to build the team, supported with problem solving, protocols, architecture and algorithms expertise. Developed custom test plans for analysis of wireless, image and signal processing algorithms, power management, file systems, and flash wearing algorithms. Initiated use of off-shore offices for research support, software development and RE.

Hands-on built several engines for circuit RE tools: image processing, structural data mining for circuit recognition, multi-threaded and distributed processing, networking, rendering, and artificial intelligence. Created a prototype for supervised automatic categorization of large volumes of patents; the system was successfully applied to help with finding of interesting patents by small entities and patent intelligence (understanding business goals by looking at patenting activities.) Managed overall development, software configuration management and development tools. Gained substantial experience in state of the art algorithm development and tools, graphics and GPU, text mining, AI and software development tools. Asserted patents in all of those areas.

Responsible for federated search application providing access to all analysis results by engineering and account managers. Gained experience in enterprise portals and search. Asserted patents in those areas.

Primary inventor or co-inventor on over 20 patent families in the areas of image processing, circuit RE algorithms, information systems for patent licensing, and functional testing for patent assertion.

WEBMOTION

Developer of content management and portal solutions for the financial industry.

R&D team manager, 2001 to 2002; **Off-shore contractor**, 1998 to 1999.

Using J2EE platform, created portal and content XML/XSLT management system. Used distributed objects, cache, multi-threading server side engine.

Developed multi-dimensional web log analytic toolset allowing to create custom event handlers for user level and session events. Used Perl and LAMP (Linux/Apache/PHP/MySQL) platform.

AQUERY.COM

Search/internet knowledge mining startup.

Sr. Software Engineer, 2000.

Developed text processing algorithms and indexing data structures. Gained substantial expertise in search engine internals.

INSO (EBUSINESS TECHNOLOGIES.COM)

Provider of the first XML based content management solution for financial and telecom industries.

Software Engineer, 2000.

Tasked with the engine optimization. C++/OOP/OOD. Cross platform (Windows/Linux/HP-UX) development.

MZOR

Post-soviet R&D and manufacturing facility building high precision milling and balancing machines for energy, transportation, and defense industries.

Software technologist, 1989 - **Software engineer – Technical Lead – Applications manager – Head of IT**, 2000.

Hands on administration, trouble shooting, managing of deployment, and procurement of enterprise wide network (3 square kilometers, heterogeneous: Linux/Novell/NewBridge/Windows/HP UX, AIX and SGI workstations) and applications (CAD, EDA, ERP, Finance, Groupware, Document management.)

Developing of Linux device drivers to connect with legacy IT systems, communication devices, and CNC machines.

Adopted Linux TCP/IP stack to deal with realities of post-soviet communication links. The modified stack was widely used in mid-1990's. Created Linux trustees system to simplify security and permissions administration for enterprise Linux. The system was later replaced by Linux capabilities, but was in use by NASA and several major US universities in late 90-ies.

Lead development of custom ERP system, custom CNC controller RTOS. Developed filtration and approximation DSP algorithms for balancing and milling machines. Developed cross-compiler for CNC controllers. Developed web based corporate search combining ERP and design data.

TEACHING AND R&D

Carleton University (Canada), Bielefeld University (Germany), Belarusian State University, Belarusian Ministry of education. Read or TA-ed web development, image processing, image compression, algorithms and data structures, data bases, computational geometry.

Belarusian Center for Medical technologies. Medical statistics, medical data exchange, consulting researchers and industry on medical devices algorithms, design and analysis of experiments.

Delivered professional development courses for virtually all organizations I worked.

EDUCATION

Ph.D. 1998. Applied mathematics and statistics. Belarusian State University/Academy of Sciences of Belarus. Developed concept of **rectangular wavelet transform** and researched applications to image and video de-noising, compression, vibration control, etc.

M.Sc. 1994. Computer science. Thesis in stochastic algorithms and combinatorial optimization with applications to electronic design automation. Post-grad level courses in combinatorial optimization, statistics, functional analysis, image processing, stochastic algorithms.

Over 25 certifications in different areas of software development and information technologies.

Patents and publications

US 7,751,643; US 7,693,348; US 7,643,665; US 7,580,557; US 7,207,018, US app 12/029, 199 – image processing and computer vision.

US 7,899,640 – patent assertion techniques using functional testing.

US app 12/153,320, US app 11/411593, US app 12/817727, US app 12/816144, US app 12/989739 – computational geometry and netlist level algorithms for circuit reverse engineering.

US app 11/847,706, US app 11/847,706 - knowledge management for patent licensing.

US app 12/618,680 (allowed), US app 61/346,865 – game based strengthening exercises and home based physiotherapy

US app 13/007,617, US app 61/414,404, US app 61/378,373 – interface of home appliances with smart grid, home based energy storage, smart grid business methods.

Several trade publications (EETimes, Embedded conference) with analytical findings to promote software and system capabilities of UBM techninsights.

Peer reviewed publications in high impact journals related to image processing: Semiautomatic segmentation with compact shape prior, Image Approximation by Rectangular Wavelet Transform.

More than 15 peer reviewed articles in Russian. Topics include approximation theory, statistics, electronics design automation, infinite dimensional integration, teaching of computer science.

R.Krten, E.Keyes, V.Zavadsky. Protecting System and Software Patents . ESC Boston, 2009

J.Abt, .V.Gont, V. Zavadsky, Y.Choi. Identifying IP cores -- to protect your investment. Design-resuse.com, Jan 2009.

V.Zavadsky. Who'll Provide the Power Behind the Mainstream Business Tablet? EE Times, n1582 p40(2), May 2010

P. Das, O. Veksler, V. Zavadsky, Y. Boykov . Semiautomatic Segmentation with Compact Shape Prior, Image and Vision Computing, January 2009

Zavadsky, V. Image Approximation by Rectangular Wavelet Transform. J. Math. Imaging Vis. 27, 2 (Feb. 2007), 129-138.

P. Das, O. Veksler, V. Zavadsky, Y. Boykov. Semiautomatic Segmentation with Compact Shape Prior, Canadian Conference on Computer and Robot Vision, June 2006, pp. 26-38, (CRV'06)

P. Das, O. Veksler, V. Zavadsky, Y. Boykov , Semiautomatic Segmentation of Transistor Gates in Integrated Chips . Workshop on Applications of Computer Vision, in Conjunction with 9th European Conference on Computer Vision, May 2006

E. Keyes, V.Zavadsky. Open algorithmical problems in the analysis of integrated circuits. 2003. University of Minnesota Industrial Problems Seminar.

Zavadsky V.L., Blinova E. Nonparametric estimation over l_p balls in l_r . Izvestiya of Academy of Sciences of Belarus, 1998, N 2, pp 18-22

Zavadsky V.L. Separating families of invariant functionals. Izvestiya of Academy of Sciences of Belarus, 1994, N 2, pp 24-27

Zavadsky V.L. Multiresolutional approximations in the spaces of functions with bounded mixed derivative. Proceedings of conference dedicated to the 25-th anniversary of faculty of applied mathematics of the state University of Belarus. 1995, pp 12-15

Zavadsky V.L. Approximations of the functions with limited mixed derivative by wavelets. Peer reviewed preprint, Institute of Mathematics of Academy of Sciences of Belarus, Minsk, 1997, N1 (524) 12 pp

Zavadsky V.L. The thresholds estimators over l_p balls are minimax for non-gaussian noises. Peer reviewed preprint, Institute of Mathematics of Academy of Sciences of Belarus, Minsk, 1998, N2 (525) 6 pp

Zavadsky V.L Non-linear approximations of the functions with limited mixed derivative by wavelets. Peer reviewed preprint, Institute of Mathematics of Academy of Sciences of Belarus, Minsk, 1997, N15 (538) 13 pp

Zavadsky V.L, Petrov V.A. Approximate calculation of Wiener continual integrals of a special kind.
Izvestiya of Academy of Sciences of Belarus, 1997, N 4, pp 30-34